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Advances in the knowledge of the Mediterranean-Atlantic migration of the fin whale (*Balaenoptera physalus*) in the Iberian Mediterranean corridor. Data collection, migration periods and swimming speeds

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Introduction

Fin whales *(Balaenoptera physalus)* migrate between the Mediterranean Sea and the Atlantic sea through the Strait of Gibraltar (Raga and Pantoja, 2004). Their migrations towards the Atlantic sea take place close to the Spanish coast in the strait of Gibraltar (Gauffier *et* al., 2018) but also in other parts of the Mediterranean sea, passing through areas outside the Mediterranean cetacean migration corridor and the Alborán corridor (IMMA) being exposed to maritime traffic. noise and harassment from sport boats.

Figure 1. Study area

Methods

During the year 2022 different entities developed campaigns for the study of fin whales in the SW Mediterranean Sea. IGIC-.Universitat Politècnica de Valencia, Laboratory of Marine Biology (University of Seville)- Ecolocaliza and Fundación Migres, deployed three land-stations located along the south-eastern coast of Spain (Fig. 1). Photo ID can be used to study habitat use and movements of highly migratory cetaceans (Alessi *et* al., 2014) and this information was collected by EDMAKTUB and IGIC-UPV vessel in Valencia, Ecolocaliza in La Línea de la Concepción and the Whale Watching company, Turmares in Tarifa.

Results

Area	Valencia				Strait of Gibraltar				
Location	Cabo rorcual-IGIC_UPV			Edmaktub	Ecolocaliza- LBM-US			Migres-Turmares	
Land/boat	CR - Land	CS	Boat	Boat	PRCEO-Land	CS	Boat	Migres-Land	Turm- Boat
Effort (h)	291:20:00	0	119:30:00	41:52:11	488:19:00	0	44	1236:30:00	742:31:00
Sightings	17	21	11	8	42	28	3	74	35
Individuals	18	38	21	21	80	67	12	138	64

Table 1: Efforts, sightings and numbers of whales for all entities involved from 11th of june to the 30th of July 2022

Three matchings of photo ID were obtained between Valencia and the Strait of Gibraltar (Fig.2). The coastal distance between the three stations was calculated, therefore the speed of the whales between the stations. Whales speed´s signification was analysed thorough the non-parametric Wilcoxon median test resulting non-significant. Several lapses of days were assumed between the number of individuals of the different stations to prove that the swimming speed coincided with the averaged through the Photo-ID matching times (Fig.3).

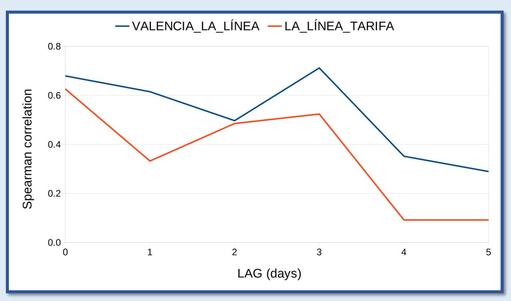

Figure 3. Correlation analysis between departures and arrivals at different points with different day lapses.

Discussion

Taking in consideration that photo-ID matchings were limited due to the difference in photographed sides of the whales between entities, the uniformity of protocol and the collaboration of entities along the coast of Spain can provide very important information in the fin whales migration routes and their timing of arrivals to the Strait of Gibraltar which could contribute to the management and conservation of this species in human impacted environments and heavy maritime traffic routes.

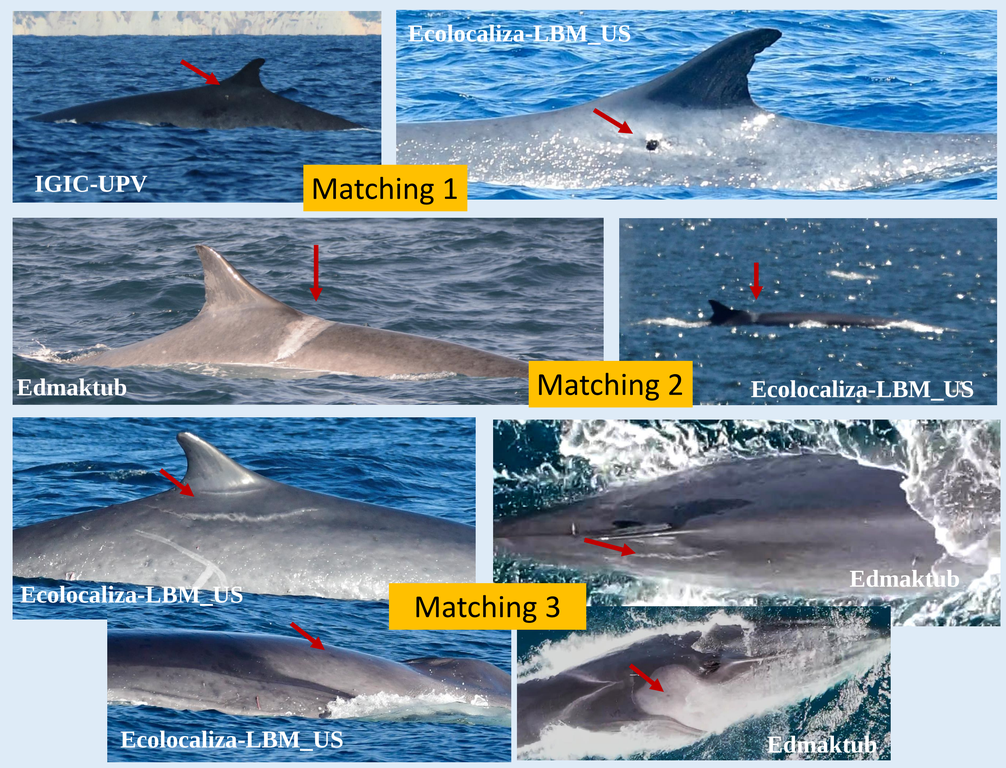

Figure 2. Matchings Valencia – Strait of Gibraltar

Aknowledgements. Thanks to Fundación biodiversidad, MITECO and all the volunteers that made possible this work, specially Luisa Haasova, M Carmen Benítez and Esther Guerrero.

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